

WHAT IS CLAIMED IS:

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1. A method of processing a band-limited, over-sampled signal comprising: reducing the amplitude of those portions of the signal having peaks above a threshold value; and controlling the frequency position of the noise associated with the reduction of such peaks.

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2. The method of claim 1 wherein the step of reducing the amplitude comprises: clipping the signal relative to the threshold; filtering the clipped signal; and combining the filtered clipped signal with the band-limited, over-sampled signal.

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3. The method of claim 2 wherein the step of clipping the signal comprises: limiting the amplitude of the signal to the threshold; and subtracting the limited signal from the band-limited, over-sampled signal.

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4. The method of claim 2 wherein the step of filtering the clipped signal comprises creating a pulse having a pre-determined shape dependent upon the clipped samples.

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5. The method of any of claims 2 to 4 wherein the step of combining comprises subtracting the filtered signal from the band-limited, over-sampled signal.

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6. The method of claim 2 wherein the step of combining comprises delaying the band-limited, over-sampled signal by an amount corresponding to the time taken to implement the clipping and filtering steps.

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7. The method of claim 1 wherein the step of moving the noise comprises filtering.

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8. The method of claim 1 wherein the step of controlling the frequency position of the noise comprises moving the noise outside the frequency band used by the signal.

420 9. The method of claim 1 wherein the step of controlling the frequency position of the noise comprises moving the noise outside the frequency band used by a signal transmitted in the opposite direction.

425 10. The method of claim 9 wherein the signal contributes an echo to the signal transmitted in the opposite direction.

11. A method of processing a band-limited, over-sampled signal comprising: clipping the signal at a given threshold;  
430 subtracting the clipped signal from the signal; filtering the subtracted signal to thereby control the frequency position of the clipping noise; delaying the signal; and subtracting the filtered signal from the delayed signal, thereby reducing the amplitude of those portions of the signal having peaks above  
435 the threshold.

12. A circuit for processing a band-limited, over-sampled signal, comprising: circuitry for reducing the amplitude of those portions of the signal having peaks above a threshold  
440 value; and circuitry for controlling the frequency position of the noise associated with the reduction of such peaks.

13. The circuit of claim 12 wherein the circuitry for reducing comprises: a limiter for clipping the signal relative  
445 to the threshold; a filter for filtering the clipped signal; and an arithmetic unit for combining the filtered clipped signal with the signal.

14. The circuit of claim 13 wherein the arithmetic unit is a  
450 subtractor.

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15. The circuit of claim 12 further including a delay circuit for providing a delayed version of the signal to the arithmetic unit.

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16. The circuit of claim 12 wherein the circuitry for controlling the frequency position of the noise comprises a filter.

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17. The circuit of claim 12 wherein the circuitry for controlling the frequency position of the noise controls the noise to be positioned outside the frequency band used by the signal.

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18. The circuit of claim 12 wherein the circuitry for controlling the frequency position of the noise controls the noise to be positioned outside the frequency band used by a signal transmitted in the opposite direction.

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19. The circuit of claim 18 wherein the signal contributes an echo to the signal transmitted in the opposite direction.

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20. A circuit for processing a band-limited, over-sampled signal comprising: a limiter for clipping the signal to a given threshold; a first subtractor for subtracting the clipped signal from the multi-carrier signal, thereby generating clipped samples; a filter for filtering the clipped samples to thereby control the frequency position of the clipping noise; a delay circuit for generating a delayed version of the multi-carrier signal; and a second subtractor for subtracting the filtered clipped samples from the delayed multi-carrier signal, wherein the amplitude of those portions of the signal having peaks above the threshold is reduced.

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